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Experiment Station

WHO STARTS FOREST FIRES IN MAINE — AND HOW?

In 1964 the Maine Forest Service, in cooperation with the Northeastern Forest Experiment Station, conducted intensive investigations of a systematically selected sample of the fires that occurred in the State that year. The immediate purpose was to determine precisely how the fires started and who or what started them, and to assemble relevant information about the people and circumstances involved. The basic objective of any such work is, of course, to reduce forest fires. The information gleaned from these investigations was expected to provide helpful guides for making the State's forest-fire-prevention program more effective.

The sampling was done on a district basis. The procedure was to investigate every fifth fire in each district. All together, 171 fires were investigated.

Results

For 88 of the 171 fires, or 51 percent, the cause was positively identified. For 66 of them, or 39 percent, cause was not positively identified but evidence pointing to probable cause was obtained. For 17 of the fires, or 10 percent, the evidence was too inconclusive to justify assigning even a probable cause. Table 1 gives a breakdown of the causes for the 154 fires for which positive or probable identifications were made.

Some causes of fires are more easily and positively determined than others. Debris-burning and lightning are among the more easily identifiable causes; smoking and incendiarism, for example, are much harder to indict with certainty. The data in table 1 tend to bear out these generalizations.

Table 1. — Causes of the 154 fires for which positive or probable identifications were made

Cause	Identification positive		Identification probable		Both categories combined	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Debris-burning	45	51	14	21	59	38
Smoking	4	5	14	21	18	12
Machine use	10	11	9	14	19	12
Campfires	2	2	—	—	2	1
Lightning	13	15	3	4	16	11
Incendiary	2	2	7	11	9	6
Miscellaneous[1]	12	14	19	29	31	20
All causes	88	100	66	100	154	100

[1] Among the miscellaneous causes, children playing with matches was predominant: 20 of the 154 fires or 13 percent (6 positive and 14 probable identifications) were attributed to this cause alone. The other 11 fires in this category were attributed to various causes, as follows: burning buildings — 3, power line — 2, hot ashes from stove — 2, burning bulldozer — 1, fireworks — 1, exploding can of tar — 1, and sun shining through a bottle — 1.

Lightning accounted for 11 percent of the 154 fires listed in table 1. No other so-called acts of God were involved. Hence, as a round figure, about 90 percent of these fires were man-caused. However, there were 30 of the man-caused fires for which no individual person could be considered responsible. Chief among the causes of these fires were railroads and burning dumps.

For the 108 fires for which an individual person was considered responsible, data were obtained insofar as possible about that person's sex, age, residence, occupation, and what he was doing when the fire started. The data are not complete for all the fires in any of these categories; completion scores range from 93 (86 percent) of the 108 fires for sex of the person involved, down to 82 (76 percent) of the 108 fires for the person's occupation. The data collected about these people are summarized in table 2.

Discussion

The results of our investigations of these fires point to these conclusions:

- That about 90 percent of the forest fires in Maine are man-caused and thus are subject to influence by prevention programs.
- That children under 12 years are an important factor in forest-fire occurrence in Maine. In this study, they accounted for nearly one-fourth of all fires that could be charged to an individual person.

Table 2. — Classification of the people responsible for starting fires investigated in Maine in 1964

Category	Item	Percent
Sex	Male	88
	Female	12
Age	Under 12 years	24
	12 to 20 years	9
	21 to 50 years	47
	Over 50 years	20
Residence	Out of state	3
	Within state	97
	Within town	85
Occupation	Students[1] and pre-school	31
	Farmers	16
	Woods workers	11
	Service employees	7
	Housewives	6
	Retired	6
	Truckers	5
	Unskilled	5
	Miscellaneous other: commercial fishermen, managerial, law enforcement, disabled, unemployed	13
Activity when fire started	Debris-burning	49
	Playing (children under 12 years)	22[2]
	Cutting, yarding, and hauling wood	11
	Fishing	4
	Parking in secluded areas	2
	Miscellaneous other: walking or hiking, joyriding, camping, driving truck, berry-picking, shooting fireworks, repairing a cottage.	12

[1] Includes students more than 12 years old.
[2] This figure does not include fires started by children while engaged in other than strictly play activities.

- That State residents are responsible for almost all of the fires (97 percent in this study); and further that local town residents are responsible for most of the fires in their towns (85 percent in this study).
- That most of the fires that can be charged to individual persons originate from three activities: debris-burning, children playing, and woods work. The respective proportions in the study were 49 percent, 22 percent, and 11 percent, totaling 82 percent.

The information derived from these investigations should be helpful in tailoring a forest-fire-prevention program to the State's needs. Continued emphasis on fire-prevention indoctrination in schools is indicated. Efforts to have more fire prevention incorporated into television programs directed to children at the pre-school and lower-grade levels might be worthwhile. Certainly a continuing barrage of publicity about the dangers in all types of debris-burning is warranted by the study findings.

— WAYNE G. BANKS and FRED E. HOLT[1]

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